

## PATENT COOPERATION TREATY

## PCT

01 JUN 2004


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INTERNATIONAL PRELIMINARY EXAMINATION REPORT  
(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 32295 PC 01	<b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/PEAA4-16)	
International application No. PCT/DK 03/00331	International filing date (day/month/year) 19.05.2003	Priority date (day/month/year) 17.05.2002
International Patent Classification (IPC) or both national classification and IPC C07C225/16		
Applicant LICA PHARMACEUTICALS AS et al.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 6 sheets, including this cover sheet.
- ☐ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).
- These annexes consist of a total of sheets.

3. This report contains indications relating to the following items:
- I ☒ Basis of the opinion
  - II ☐ Priority
  - III ☒ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
  - IV ☐ Lack of unity of invention
  - V ☒ Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
  - VI ☐ Certain documents cited
  - VII ☐ Certain defects in the international application
  - VIII ☐ Certain observations on the international application

Date of submission of the demand  22.11.2003	Date of completion of this report  28.05.2004
Name and mailing address of the international preliminary examining authority:   European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized Officer  Goetz, G  Telephone No. +49 89 2399-8105



**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT**

International application No. **PCT/DK 03/00331**

**I. Basis of the report**

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

**Description, Pages**

1-67 as originally filed

**Claims, Numbers**

1-50 as originally filed

**Drawings, Sheets**

1-8 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
- ☐ the claims, Nos.:
- ☐ the drawings, sheets:

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5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

*(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)*

6. Additional observations, if necessary:

**III. Non-establishment of opinion with regard to novelty, inventive step and industrial applicability**

1. The questions whether the claimed invention appears to be novel, to involve an inventive step (to be non-obvious), or to be industrially applicable have not been examined in respect of:

☐ the entire international application,

☒ claims Nos. 39 - 50

because:

☒ the said international application, or the said claims Nos. 39 - 50 relate to the following subject matter which does not require an international preliminary examination (specify):

**see separate sheet**

☐ the description, claims or drawings (*indicate particular elements below*) or said claims Nos. are so unclear that no meaningful opinion could be formed (*specify*):

☐ the claims, or said claims Nos. are so inadequately supported by the description that no meaningful opinion could be formed.

☐ no international search report has been established for the said claims Nos.

2. A meaningful international preliminary examination cannot be carried out due to the failure of the nucleotide and/or amino acid sequence listing to comply with the standard provided for in Annex C of the Administrative Instructions:

☐ the written form has not been furnished or does not comply with the Standard.

☐ the computer readable form has not been furnished or does not comply with the Standard:

**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Yes: Claims	1-50
	No: Claims	
Inventive step (IS)	Yes: Claims	1-50
	No: Claims	
Industrial applicability (IA)	Yes: Claims	1-38
	No: Claims	

2. Citations and explanations

**INTERNATIONAL PRELIMINARY  
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see separate sheet

**Re Item III**

**Non-establishment of opinion with regard to novelty, inventive step and industrial applicability**

For the assessment of the present claims 39 - 50 on the question whether they are industrially applicable, no unified criteria exist in the PCT Contracting States. The patentability can also be dependent upon the formulation of the claims. The EPO, for example, does not recognize as industrially applicable the subject-matter of claims to the use of a compound in medical treatment, but may allow, however, claims to a known compound for first use in medical treatment and the use of such a compound for the manufacture of a medicament for a new medical treatment.

Claims 39 - 50 relate to subject-matter considered by this Authority to be covered by the provisions of Rule 67.1(iv) PCT. Consequently, no opinion will be formulated with respect to the industrial applicability of the subject-matter of these claims (Article 34(4)(a)(I) PCT).

**Re Item V**

**Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

D1: WO 93 17671 A (STATENS SERUMINSTITUT) 16 September 1993 (1993-09-16) cited in the application

D2: WO 99 00114 A (CHRISTENSEN SOEREN BROEGGER ;STATENS SERUMINSTITUT (DK); KHARAZMI) 7 January 1999 (1999-01-07) cited in the application

1. Present claim 1 is directed to chalcone derivatives having antibacterial and antiparasitic activity.  
Chalcone derivatives are disclosed in D1 and D2; these compounds show the same biological activity. D1 as well as D2 can thus be regarded as representing the closest prior art.
2. The claimed compounds differ from the chalcone derivatives known from D1/D2 in

particular by the substituent  $Y^1/Y^2$  which is represented by the formula  $-N-R^3-Z-N(R^1)R^2$ .

None of the compounds disclosed in either D1 or D2 shows this structural feature. The subject matter of present claims 1 to 16 (compounds), 17 to 33 (composition, use of the compounds), 34 to 38 (preparation of the compounds), 39 to 50 (use) is thus novel over said prior art (PCT Article 33.2).

3. In view of D1/D2 the underlying problem can be defined by the provision of further chalcone derivatives having antibacterial and antiparasitic activity.

The claimed compounds are regarded to solve this problem since the presented examples and biological tests are considered to be a representative for the subject matter of present claim 1.

The structural difference between the claimed compounds and the prior art compounds (as mentioned above) is thus that starting from D1/D2 it appears not to be obvious to modulate and amend the structure of the prior art compounds in the way it has been done in present application. There is also no indication to be found in D1/D2 which would encourage the skilled person to perform these amendments in the structure of the known compounds.

In addition the comparison tests between the claimed compounds and lipochalcone A and 4-methoxy-chalcone (both compounds disclosed in D1 and both compounds not having the substituent  $Y^1/Y^2$ ) show the superior activity of the claimed compounds. Such an effect is not derivable from the prior art.

The subject matter of present claims 1 to 16 and consequently claims 17 to 50 is thus regarded to be based on an inventive step (PCT Article 33.3).

4. Industrial applicability can be acknowledged for claims 1 to 38 (PCT Article 33.4)